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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,683	06/21/2006	Peter Larsson	P18752-US1	9439
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ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024				
EXAMINER				
JAMA, ISAAK R				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/596,683

**Applicant(s)**

LARSSON ET AL.

**Examiner**

ISAAK R. JAMA

**Art Unit**

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06/21/2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-50 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 21 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-850)  
Paper No(s)/Mail Date 06/21/2006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-25 are rejected under 35 U.S.C. 101 because

The claims are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent<sup>1</sup> and recent Federal Circuit decisions<sup>2</sup> indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the step of 'transmitting' could be performed mentally, verbally or without a machine. The examiner suggests amending the claims to explicitly recite the structure performing, at least one, step.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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<sup>1</sup> *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

<sup>2</sup> *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 23, 26 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.).
  3. Regarding claim 1, 23, 26 and 48, Erten teaches a continuously adaptive dynamic signal separation and recovery system whereby two mixed signals which originate from two different sources are separated **[Column 9, lines 1-13]**, furthermore, Erten teaches a dynamic signal separation algorithm used in each cell tower and each mobile receiver with the ability to distinguish and adaptively reject multipath signals, crosstalk and interference of signals that occupy overlapping spectra **[Column 18, lines 15-19]**. But Erten does not specifically teach transmitting the traffic with different characteristics on physically wholly or partially separated channels. Yi teaches a method and radio equipment of communications of traffic with different characteristics **[Figure 1, Page 2, paragraph 00132]** wherein, the method comprising transmitting the traffic with different characteristics on physically wholly or partially separated channels **[page 4, paragraph 0085]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the method of Yi in the signal separation system of Erten in order to adaptively recover original signals sharing the same channel.
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4. Claims 7, 9-12, 32 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Application Publication Number 2004/0095903 (Ryan et al.)
5. Regarding claims 7, 9-12, 32 and 34-37, Erten and Yi are discussed above, but neither Erten nor Yi specifically teach is that at least one of the categories of communications comprises opportunistic communications, and that at least one of the categories of communications comprises conventional communications, which is a circuit switched communications which is voice, and that the conventional communications comprise communications with real-time requirements. Ryan teaches that at least one of the categories of communications comprises opportunistic communications **[Figure 2, Page 1, and paragraph 0016]**. Ryan further teaches that at least one of the categories of communications comprises conventional communications, which is a circuit switched communications which is voice **[Page 1, paragraph 0010]**. Ryan also teaches that the conventional communications comprise communications with real-time requirements **[Page 2, paragraph 0014]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the systems of Ryan in the combined system of Erten and Yi in order to incorporate voice and data systems.
- 6.
7. Claims 4, 5, 17-22, 24, 29, 30, 42-47 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S.

Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Number 6,064,662 (Gitlin et al.)

8. Regarding claims 4, 5, 17-22, 24, 29, 30, 42-47 and 49, Erten and Yi has been discussed above, but neither Erten nor Yi specifically teach is that the communications are separated in two-dimensional domain or that the two-dimensional domain is time-frequency domain, or that the two-dimensional domain is time-code domain, or that the two-dimensional domain is frequency code domain, or that the communications are separated in more than two-dimensional domain that includes time, frequency or code domain, and that the separation minimizes number of time slots, frequency slots or time-frequency slots of communications with different characteristics in the different cells. Gitlin teaches that the communications are separated in two-dimensional domain **[Figure 9 – Gitlin]**. Gitlin also teaches that the two-dimensional domain is time-frequency domain **[Figure 5 – Gitlin]**. Gitlin further teaches that the two-dimensional domain is time-code domain **[Figure 7 – Gitlin]**. Furthermore, Gitlin teaches that the two-dimensional domain is frequency code domain **[Figure 8 – Gitlin]**. In addition, Gitlin teaches that the communications are separated in more than two-dimensional domain that includes time, frequency or code domain **[Figure 10 – Gitlin]**. Gitlin also teaches that the separation minimizes number of time slots, frequency slots or time-frequency slots of communications with different characteristics in the different cells **[Figure 10 – Gitlin]**. And finally, Gitlin teaches that the first category of communications is transmitted with stationary or quasi-stationary transmission power level. **[Column 8, lines 12-27 –Gitlin]** as well as that the quasi-stationary transmission power level is

varying slower than the lowest speed of communications variations of the traffic of the first category. [ **column 1, lines 50-53, i.e. in pure TDMA architecture both higher-speed and lower-speed users share a common communications bandwidth, typically by assigning more time slots per frame to the higher-speed users -**

**Gitlin]**Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the systems of Gitlin in the combined system of Erten and Yi in order to account the frequency, time and code of the signal.

9. Claims 2 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Application Publication Number 2006/0111148 (Mukkavili et al.)

10. Regarding claims 2 and 27, Erten and Yi has been discussed above, but neither Erten nor Yi specifically teach that the different characteristic of transfer comprises different time scale of power control adjustments. Mukkavili teaches that different characteristic of transfer comprises different time scale of power control adjustments [Page 2, paragraph 0019; i.e. channel fading is assumed to be quasi-static over time; i.e., the channel remains constant within a frame while the channel realization is independent from frame to frame. We assume that the channel is known perfectly at the receiver. In practice, good channel estimates can be obtained at the receiver by employing preamble based training in the system. We also assume the existence of an error-free feedback channel from the receiver to the transmitter which carries B bits every frame. For simplicity, power adjustment

**over time; (i.e., temporal power control) is not performed].** Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the systems of Mukkavili in the combined system of Erten and Yi in order to adjust power accordingly.

11. Claims 3 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Application Publication Number 2006/0111148 (Mukkavili et al.) and further in view of U.S. Patent Number 6,064,662 (Gitlin et al.)

12. Regarding claims 3 and 28, Erten, Yi and Mukkavili has been discussed above, what Erten, Yi and Mukkavili does not teach is that there is a difference in time scale between at least two categories that is at least one order of magnitude. Gitlin teaches that there is a difference in time scale between at least two categories that is at least one order of magnitude [Figure 6, # 54, column 6, lines 10-19 - Gitlin]. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the system of Gitlin in the combined system of Erten, Yi and Mukkavili in order to separate the signals.

13. Claims 6 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Number 7,164,649 (Walton et al.)



14. Regarding claims 6 and 31, Erten and Yi has been discussed above, but Erten and Yi fail to teach that the first category of communications is transmitted with channel adaptive data rate control. Walton teaches an adaptive rate control for OFDM communication systems whereby various types of metrics may be used in different manners to adaptively control the rate **[abstract]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the system of Walton in the combined system of Erten and Yi in order to vary the transmission rate accordingly.

15. Claims 8 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Number 5,751,704 (Kostic et al.)

16. Regarding claims 8 and 33, Erten and Yi has been discussed above, but Erten and Yi fail to teach is that the second category of communications is transmitted with power level adapted to counteract fading. Kostic teaches that the second category of communications is transmitted with power level adapted to counteract fading **[Columns 1 & 2, lines 64-67 and 1-3 – i.e. scheme provides a means for minimizing a variance of interference, it is desirable to be able to satisfy the demands of multi-media traffic and to successfully combat multipath fading channels through utilization of a packet-based CDMA system]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the system of Kostic in the combined system of Erten and Yi in order to account for fading.

17. Claims 8 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Number 7,099,629 (Bender)

18. Regarding claims 13, 14, 38 and 39; Erten and Yi has been discussed above, but Erten and Yi fail to teach is that the communications are separated in one-dimensional domain which is a time domain. Bender teaches that the communications are separated in one-dimensional domain which is a time domain **[Figure 2b - Bender]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the system of Bender in the combined system of Erten and Yi in order to use different metrics.

19. Claims 15, 16, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.), in view of U.S. Patent Number 7,099,629 (Bender) and further in view of U.S. Patent Number 6,064,662 (Gitlin)

20. Regarding claims 15, 16, 40 and 41, Erten, Yi and Bender has been discussed above, what Erten, Yi and Bender do not teach is that the one-dimensional domain is frequency domain or a code domain. Gitlin teaches a system whereby the one-dimensional domain is frequency domain **[Figure 2]**, and that the one-dimensional domain is code domain **[Column 2, lines 58-67]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the

system of Gitlin in the combined system of Erten, Yi and Bender in order to use different parameters.

21. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,236,862 (Erten et al.) in view of U.S. Patent Application Publication Number 2004/0103435 (Yi et al.) and further in view of U.S. Patent Application Publication Number 2002/0193133 (Shibutani et al.)

22. Regarding claim 50, Erten and Yi are discussed above, but neither Erten nor Yi specifically teach is that the system includes a processing circuitry which is adapted to maximize the signal to interference ratio or carrier to interference ratio of time slots, frequency slots or time-frequency slots, if any, of communications with different characteristics in the different cells. Shibutani teaches a transmission control scheme whereby in an adaptive rate scheme, the signal to interference ratio is increased. **[Page 8, paragraph 0067]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the system of Shibutani in the combined system of Erten and Yi in order to transmit at a higher data rate.

### ***Conclusion***

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication Number 2001/0043576 (Terry) teaches a wireless communication system with selectively sized data transport blocks. U.S. Patent Number 6,678,527 (Rasanen) teaches multimedia and multi-service calls in mobile network. U.S. Patent Application Publication Number 2005/0003768

(Laroia et al.) teaches methods and apparatus of providing transmit diversity in a multiple access wireless communication system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISAAC R. JAMA whose telephone number is (571)270-5887. The examiner can normally be reached on 7:30 - 5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/IRJ/

/Lester Kincaid/  
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